LIFE Platform Meeting on Forest Restoration in Europe, 3-5 JUNE, BRASOV ROMANIA

LIFE ADAPT-ALEPPO

"Adaptative management of Mediterranean *Pinus halepensis* forests in the face of Climate Change".

Miguel Chamón Fernández
INGENIERO TÉCNICO FORESTAL
D.G. PATRIMONIO NATURAL Y ACCIÓN CLIMÁTICA
REGION DE MURCIA (SPAIN)
miguel.chamon@carm.es

INDEX:

1- LIFE ADAPT-ALEPPO PROJECT: LIFE20 CCA/ES/001809

LIFE Platform Meeting on Forest Restoration in Europe, 3-5 JUNE, BRASOV ROMANIA

LIFE ADAPT-ALEPPO «Adaptive management of Mediterranean *Pinus halepensis* forests in the face of climate change»

PROJECT LOCATION: Spain

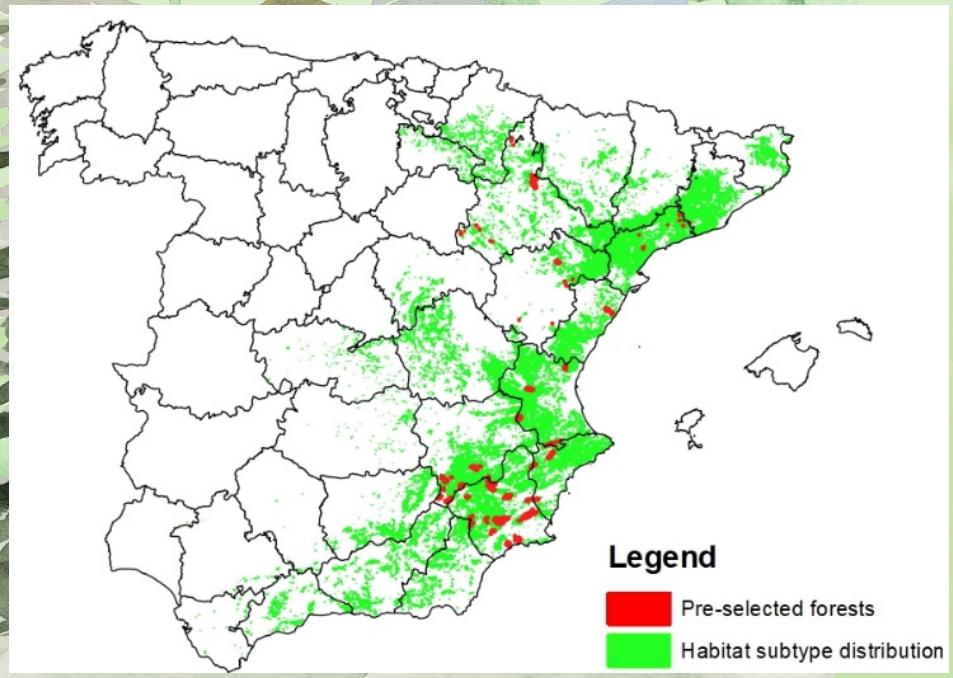
BUDGET INFO:

Total amount: 2.046.399 €

% EC Co-funding: : 1.433.268 €

DURATION: Start: 01/09/2021 - End: 31/08/2025

PROJECT'S PARTNERSHIP:



Coordinating Beneficiary: Ingeniería del Entorno Natural (IDEN)

Associated Beneficiary(ies):
- AGRESTA Sociedad Cooperativa (AGRESTA)
- Dirección General del Medio Natural de la CARM (DGMN)
- Universidad de Castilla-La Mancha (UCLM)
- Universitat Politécnica de Valencia (UPV)
- Universitat de Lleida (UdL)

OBJECTIVES AND SCOPE

Main objective of the project: the development of **new tools for the adaptation of Iberian Aleppo pine forests** (subtype 42.841 of Habitat 9540 of the Habitats Directive, Annex I) to climate change, as well as its demonstrative application. These tools will focus on:

- Early detection of decay processes and projections of potential habitat based on future climate scenarios
- Improving the resilience of the ecosystem by increasing its vigor
- Ability to adapt to climatic aridification
- Ability to recover its functions after natural disturbances

VISOR:

- Potential hábitat
- Decay processes

ASSISTED MIGRATION

(regions of procedence of P. halepensis) in hábitat restoration

Adaptative management techniques for

POST-FIRE REGENERATION

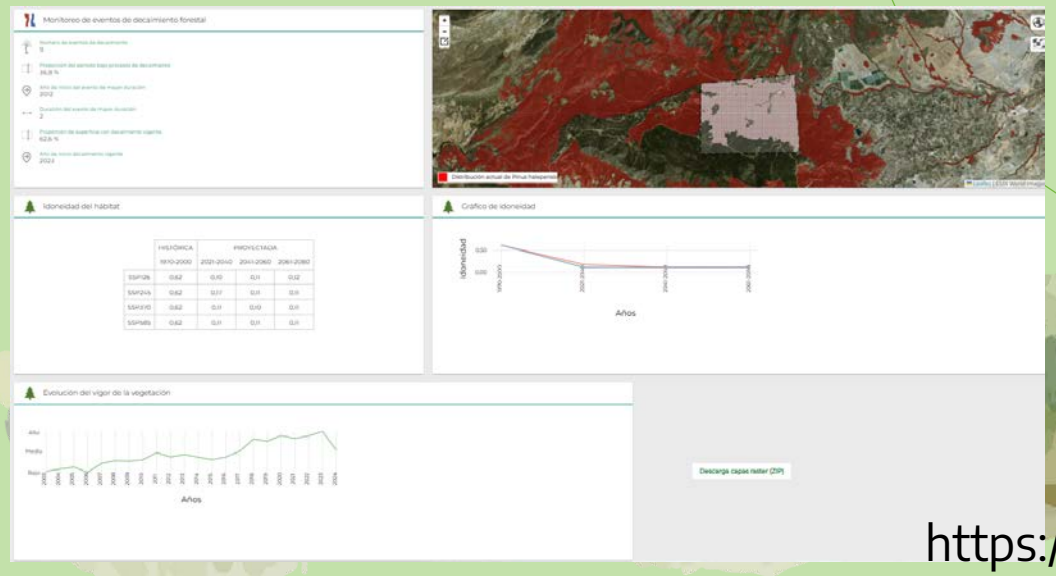
ADAPTATIVE FOREST MANAGEMENT

Silvicultural models based on

ECOHYDROLOGY

Silvicultural techniques for

STRUCTURAL AND COMPOSITION DIVERSIFICATION

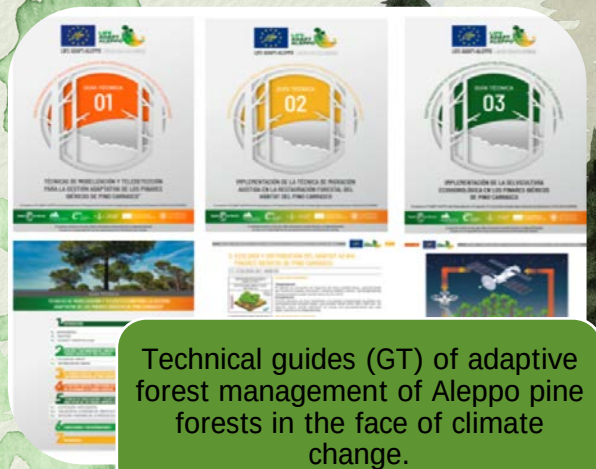


TECHNICAL GUIDES

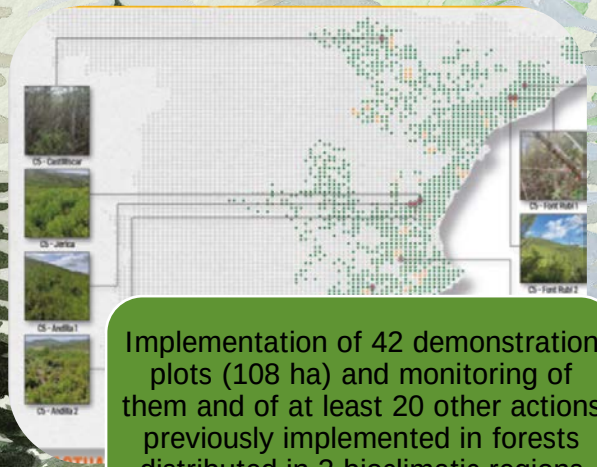
https://lifeadaptaleppo.agrestaweb.org/map?panel=freehand

EXPECTED RESULTS AND IMPACTS

Evaluation of the vulnerability of the habitat through the development of suitability maps and the diagnosis of forest decay processes



Technical guides (GT) of adaptive forest management of Aleppo pine forests in the face of climate change.



Implementation of 42 demonstration plots (108 ha) and monitoring of them and of at least 20 other actions previously implemented in forests distributed in 3 bioclimatic regions

Transfer and promotion of the use of these adaptive management tools and techniques (replicability) to facilitate their use by forest owners and managers at a local, regional and southern European scale.

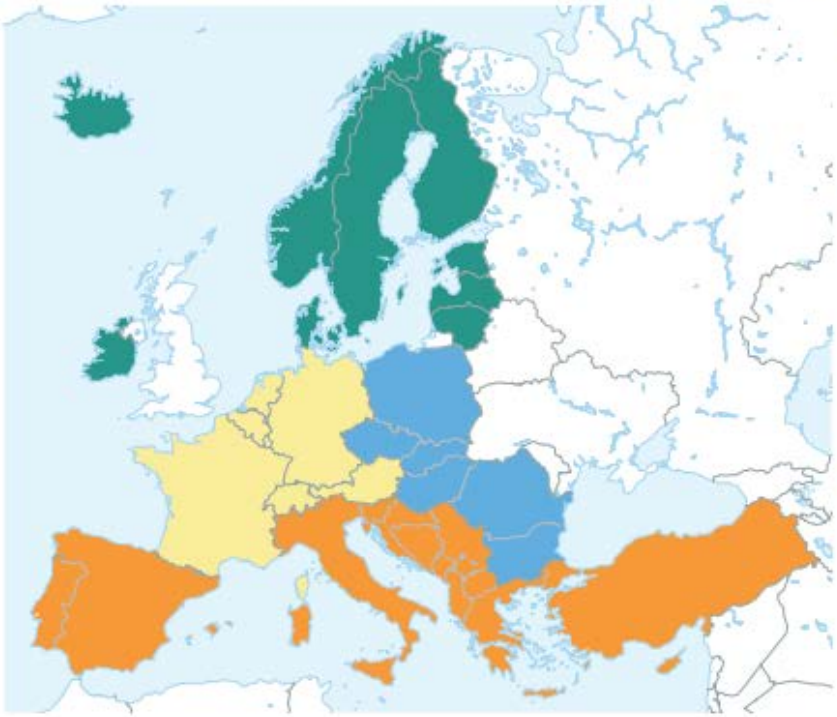
Increased awareness and knowledge among stakeholders and the general public regarding the problem addressed and the solutions provided by the project.

2- SPECIFIC CHALLENGES FOR SOUTHERN EUROPE

Observed and projected trends in key climatic risk drivers in different European regions

Land regions	Northern Europe			Western Europe			Central-eastern Europe			Southern Europe		
	Past	Future		Past	Future		Past	Future		Past	Future	
		Low	High		Low	High		Low	High		Low	High
Mean temperature	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Heatwave days	□(*)	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Total precipitation	↗	↗	↗	↗	⟋	↘	↗	↗	⟋	↘	↘	↘
Heavy precipitation	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗	↗
Drought	↗	↘	↘	↗	⟋	↗	↗	⟋	↗	↗	↗	↗

European regional seas	Past	Future
Sea surface temperature	↗	↗
Sea level	↗	↗



Legend

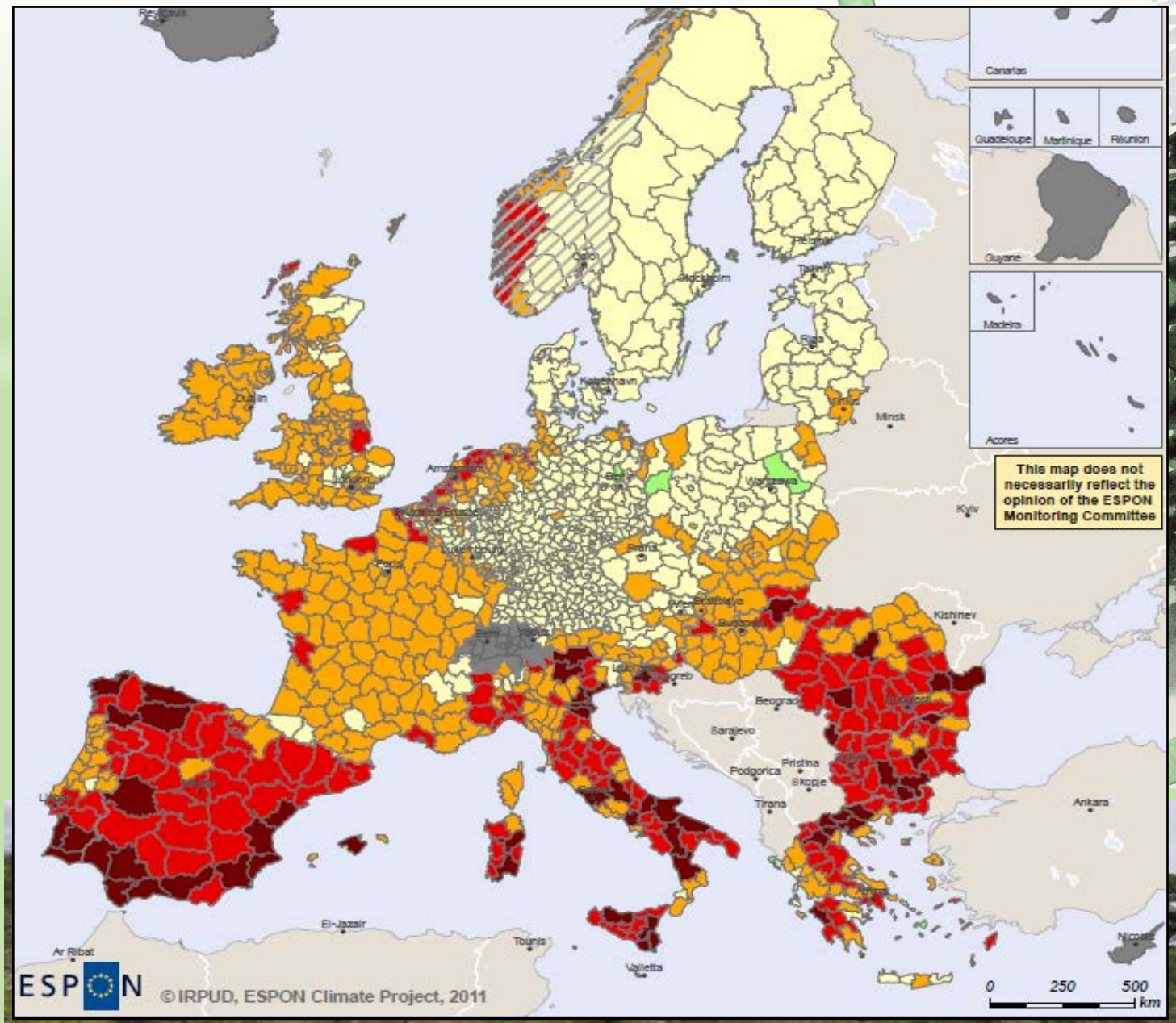
- ↗ Increase
- ↗ Increase (limited agreement between models, datasets or indices)
- ↘ Decrease
- ↘ Decrease (limited agreement between models, datasets or indices)
- ⟋ Low confidence in direction of change
- □ No change

Note

(*) Other heatwave indices show an increase for the past

Notes: Underlying climate variables are: heatwaves (days with maximum temperatures above 35°C), heavy precipitation (maximum 1-day precipitation), and drought (using a standardised precipitation evapotranspiration index over 6 months (SPEI-6, Hargreaves' method)). Time periods and scenarios are past (1952-2021); future until the end of the century (2081-2100 relative to 1995-2014); low scenario (SSP1-2.6); and high scenario (SSP3-7.0).

Source: Copernicus Climate Change Service (C3S).



Adaptation potential, that is, the ability to overcome impacts, is much lower in the Mediterranean regions, and in southern Europe in general. This differential ability to adapt to climate change will be a major driver of inequalities in the medium term.

Region of Murcia (Spain)

Climatic context

- **Southeast of the Iberian Peninsula**.
- **Area**: 11,313 km² (*with a coastline of 274 km*).
- **Population:** 1,531,878 inhabitants.
- **Precipitation:** scarce (approximately 300-350 mm/year), with summer being an eminently dry season.
- average annual **temperature:** around 19°C, one of the regions with most hours of sunshine per year.
- ***Climate projections show a trend towards*** *higher temperatures, average sea level rises, reduction in water availability, increase in anomalous and extreme atmospheric and climatological events, among others.*

Impacts and vulnerabilities

- ***Ecosystems and Biodiversity:*** Alterations in plant and animal behavior, Increases in plagues and invasive species, Biodiversity losses and Changes in migration and reproduction patterns.
- ***Water Availability:*** Reductions in water resources and a Greater variability in water availability.
- ***Soil Resources, Forests and Agriculture:*** Increase in desertification, erosion, and salinisation, Changes of species and a Higher risk of fires.
- ***Health:*** Higher rates of respiratory diseases, heart episodes and climate-related deaths, Changes in temporal and dynamics of pathogens, vectors, etc.
- ***Tourist Sector:*** Changes in both tourist activities and patterns.

"Región de Murcia"

MED FOREST PECULIARITIES:

- Low or inexistent economic return
- Low forest productivity in terms of biomass production
- Highly fragmented and poorly accesible production units
- Loss of associated Wood industry
- Lack of industry for quality Wood products
- Lack of cooperation among forest owners
- Lack of private-public cooperation in the incentives framework: (public incentives by their own, never will be the solution, but private incentives need public cooperation)
- Competition with other crops financed by the CAP
- Population loss in rural areas

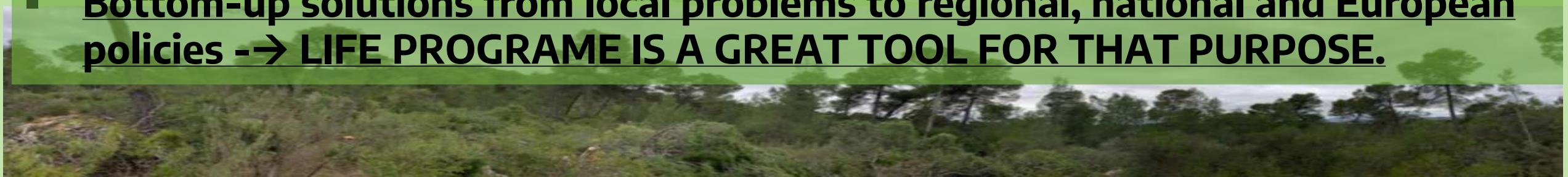
3- CONCLUSIONS

CONCLUSION (problems):

- Traditional incentives framework (supported by public incentives) is not working due to the lack of continuous funds and the complexity of its implementation.
- Lack of incentives for generating the producer's associations for stronger landowners/producers
- Weak market for offsetting CO2 emissions
- Non-existence of “payments for ecosystem services”
- Need to promote the industrial development of new technological products (such as the manufacture of innovative ecological structural systems) from quality wood
- **KEY PROBLEM: lack of PROFITABILITY.**

CONCLUSIONS (solutions):

- Incentives framework must be supported by public and private collaboration.
- SFM as a CC mitigation tool have a very strong potential
- Pay for providing environmental services.
- Pay (or fiscal advantages) for providing socio-economic services.
- Need to promote the industrial development of new technological products (such as the manufacture of innovative ecological structural systems) from quality wood in combination with traditional forest products (wood, hunt, mushrooms…)
- Added value products through CERTIFICATION SCHEMES
- **MULTI-SOLUTION APPROACH: we need a multisolution approach that brings SFM as close as possible to PROFITABILITY**
- **Bottom-up solutions from local problems to regional, national and European policies -→ LIFE PROGRAME IS A GREAT TOOL FOR THAT PURPOSE.**



THANK FOR YOUR ATTENTION!

Miguel Chamón Fernández

INGENIERO TÉCNICO FORESTAL

D.G. PATRIMONIO NATURAL Y ACCIÓN CLIMÁTICA

REGIÓN DE MURCIA (SPAIN)

+34 968362716

miguel.chamon@carm.es